

## Codes of Practice

### **Bendable Electronics and Sensing Technologies (BEST) Laboratory**

Rooms 455 and 456, James Watt (South) building  
Electronics and Nanoscale Engineering,  
School of Engineering,  
University of Glasgow.

The adoption and practice of good safety procedures is of paramount importance for both the health and safety of fellow workers, and for the integrity of the structure of the BEST Laboratory.

#### **Lab Safety Management Responsibilities**

Everyone has a role in protecting the health and safety of both other lab users and themselves, and thus should be familiar with the **School's Safety Manual**.

Academic Supervisors take full responsibility for the health and safety of their own group's research activities, and consequently must ensure their staff and students are familiar with both the content of this Code of Practice and the School's Safety Manual and apply its requirements.

- No research activities shall be carried out in the **BEST Lab, Room 455 and 456**, James Watt South Building, without the prior permission from **Prof. Ravinder Dahiya**.
- Food and drink should **NOT** be brought into the laboratory.
- Visitors must get prior permission from Lab in-charge of the BEST group (see list at the end) .
- **Risk assessment forms** must be completed for all activities not covered in this code of practice (not only those including chemicals), where there is the potential for a hazardous occurrence (this involves you thinking about the conceivable ways in which something might go wrong).
- All personal involved in changing gas cylinders and adjusting cylinder regulators should undertake the cylinder handling course.
- Report any faults, breakage in electric socket, damage in lines, equipment etc. to respective **lab in-charges** of the BEST group immediately.
- All fire doors should be kept shut.
- The main door and the doors within the laboratory should be kept shut, when not in use.
- Be careful while handling all electric equipment for the potential risk of shock.

- Walk/move inside the laboratory with caution as not to disturb/damage the shelves, structures, and equipment. Careless actions may lead to fatal accidents.
- Be careful when handling glassware. Dispose broken glassware immediately. Never use half broken or cracked glassware.
- In case of fire alarms, exit the lab without any delay/effort to collect personal belongings.
- Please leave all equipment/infrastructure in the same or better condition as it was found.
- Please get trained before using equipment instead of figuring it out on your own.
- Avoid bringing mobile phone in the lab. If it is urgent, please maintain a suitable distance from equipment before taking a call.
- Do not try to tamper with equipment or the access card system.
- Avoid any activities that may disturb others and may affect the safety of yours or others.
- Make sure the gas cylinders are hooked against the wall always.
- Please check the surrounding areas of the equipment before starting a new experiment to ensure everything is normal. If you see anything unusual, please inform to the instrument in-charge\* before starting the experiment.
- Malfunctioning of any equipment should be reported to the concerned lab in-charge \*. Troubleshooting should be carried out along the equipment in-charge\*. Do not attempt to fix the equipment without consultation.
- Please do not hesitate to report any breakdown while you are using the equipment. Reporting immediately to the equipment in-charge\* will help to solve the problem in a better possible way.
- If you displace any equipment from the respective location, please restore it immediately after the work. Tools must be placed back to the tool chest.
- Always maintain cleanliness in the laboratory
- Please leave a note if you find any equipment that is not working.
- All samples must be labelled appropriately while storing them in the lab.
- Storage of personal belongings in the lab is not allowed.
- Do not disturb other people's samples if found unattended or loaded in equipment.
- Place a note on the bench if you leave a sample loaded into equipment/instrument or leave a simulation is running on a lab computer.
- Do not take any lab items outside the laboratory without prior permission.
- Missing items or theft report/ inquire to lab members and group leader\* before taking to security.

- Don't share the lab computer passwords and lab door keys to outsiders.
- Please keep your office seating space clean and organized.
- In general, three important aspects are well functioning equipment, lab safety, and cleanliness

### **Covid-19 measures**

- 1) Guidance from the HSE, UK Government and Scottish Government to manage the risk related to Covid-19 pandemic must be applied to the BEST Lab. These include physical distancing (*at least 2 metres apart*), frequent hand washing and hygiene measures, cough etiquettes and face covering in enclosed public space. Considerations for codes of practice and risk assessment for the James Watt School of Engineering can be found here ([https://www.gla.ac.uk/media/Media\\_724009\\_smxx.pdf](https://www.gla.ac.uk/media/Media_724009_smxx.pdf))
- 2) Physical distancing within the BEST Lab means a maximum capacity of **3 individuals** working in the wet lab (room 455), **4 individuals** in the electronic lab (room 456),
- 3) Demand to use the lab will be managed by the Lab Guardian in collaboration with the Safety Coordinator. Collaboration will be required between lab users, supervisors, PIs and the lab guardian to establish a rota where necessary. Impact on the overall capacity of the James Watt (South) building will be reviewed by the Technical Services Manager.
- 4) Lab users must wash their hands regularly, use PPEs, wipes and disinfect workstation surfaces, materials, and equipment at the start of their work and before leaving.

Emergency support (First Aiders and Fire Area Officer) might be constrained due to Covid-19 restriction on building capacity. Task risk assessments need to be reviewed to include the above measures and to review with personnel through the risk assessment, which work can be safely undertaken with reduced access to emergency support. A Covid-19 risk assessment template can be found here ([https://www.gla.ac.uk/media/Media\\_723618\\_smxx.docx](https://www.gla.ac.uk/media/Media_723618_smxx.docx)).

### **Chemical handling:**

- Contact lens users are advised that it is preferable to wear spectacles when working with chemicals because volatile solvents could be trapped between the lens and eye.
- The first person (after a break) to use the fume hood (wet bench) must check the DI water plant settings to ensure the water purity.
- Users must refer the MSDS sheet before using any chemical for the first time and complete an online risk assessment form.
- **Chemical disposal:** flammable and non-flammable chemical must be disposed appropriately using the labelled containers.
- User must be aware of the toxic hazard classification (Very high, high, medium and low) of the chemicals before using for experiments (these details must be included on the risk assessment form).

- Chemical or any liquid spillages must be informed to lab safety co-coordinators\* before taking any action to remove them.
- Clean all glassware immediately after completion of your work.

**General safety instructions for wet bench users:**

- Must wear Lab coats, glasses/face shield and appropriate gloves
- Make sure to use the right kind of gloves for your chemical (PVC, Nitrile, Trionic, etc.,)
- Never touch chemicals with bare skin.
- When diluting concentrated acids, always add the concentrated acid to water slowly, rather than adding water to the concentrated acid.
- Never expose bare skin to chemical vapours and gases under any circumstances.
- Follow the manufacturer's instructions while opening and transferring new chemicals.
- Never touch lab items (equipment parts, pen, keyboard, towels, tables, door handles, your bare skin and other people) whilst wearing gloves that have been used to handle chemicals and solutions.
- Report any chemical accident to the School safety co-ordinator.
- Make sure to switch on exhaust hood before starting any experiment or cleaning process.
- Please label appropriately your own transferred chemicals and sample bottles.
- After using wet bench
  - Clean the bench
  - Replace all wearables such as glasses, coat and non-disposable gloves
    - Switch off fume the hood

**Other wastes:**

- Needles, blades and broken glasses should not be mixed and thrown with general paper waste. These materials must be packed in appropriate labelled box before a contracted disposal.

**Biosafety instructions:**

- All work relating to the use of biological agents should be discussed with the safety officer and group leader prior to planning or commencement to ensure practices, safety equipment, and facilities are suitable for the recommended biosafety level.
- Biological COSHH risk assessments must be completed and/or reviewed before work can commence.

- Guidance on good cell culture procedure and practices relating to the handling of biological agents and the disposal of biological waste, as well as training for the use of relevant equipment, e.g. operation and maintenance of the biosafety cabinet and optical microscopes, etc. must be sought before work can commence.
- Biological liquids or solids, and any liquid or solid materials contaminated with biological agents must be decontaminated using a validated autoclave process prior to disposal.
- All biological waste material should be disposed of safely using the appropriate containment facilities (e.g. yellow biosafety bins).
- When working with and/or handling biological agents, the relevant PPE must always be worn (e.g. lab coat, gloves, safety glasses, etc.),
- Hands should be washed regularly, after removing gloves and when leaving the laboratory.
- Gloves used to handle biological agents should be changed once the active task has been completed and prior to touching other surfaces and/or equipment to prevent biological contamination of the workspace.
- Work surfaces and equipment should be disinfected and/or sterilised before and after use.
- The use of UV light should be avoided when others are actively working in the laboratory.

### **Checklist for the last person to leave for the day:**

- Gas cylinders
- Lights off
- Instruments power supply.
- Key cupboard (must be locked)
- Door and windows closed

### **\* People with responsibilities for co-ordinating various things and maintaining good order in the different working areas.**

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**Bio cabinet:** Saoirse Dervin, mail-[saoirse.dervin@glasgow.ac.uk](mailto:saoirse.dervin@glasgow.ac.uk),

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